§ 179.500 Specification DOT-107A * * * * seamless steel tank car tanks.

§ 179.500–1 Tanks built under these specifications shall meet the requirements of § 179.500.

§ 179.500–3 Type and general requirements.

(a) Tanks built under this specification shall be hollow forged or drawn in one piece. Forged tanks shall be machined inside and outside before ends are necked-down and, after necking-down, the ends shall be machined to size on the ends and outside diameter. Machining not necessary on inside or outside of seamless steel tubing, but required on ends after necking-down.

(b) For tanks made in foreign countries, chemical analysis of material and all tests as specified must be carried out within the limits of the United States under supervision of a competent and disinterested inspector; in addition to which, provisions in § 179.500–18 (b) and (c) shall be carried out at the point of manufacture by a recognized inspection bureau with principal office in the United States.

(c) The term ''marked end'' and ''marked test pressure'' used throughout this specification are defined as follows:

(1) ''Marked end'' is that end of the tank on which marks prescribed in § 179.500–17 are stamped.

(2) ''Marked test pressure'' is that pressure in psig which is indicated by the figures substituted for the **** in the marking DOT-107A **** stamped on the marked end of tank.

(d) The gas pressure at 130°F in the tank shall not exceed $\frac{7}{10}$ of the marked test pressure of the tank.

[Amdt. 179–32, 48 FR 27708, June 16, 1983, as amended at 66 FR 45186, 45391, Aug. 28, 2001]

§ 179.500–4 Thickness of wall.

(a) Minimum thickness of wall of each finished tank shall be such that at a pressure equal to $\frac{7}{10}$ of the marked test pressure of the tank, the calculated fiber stress in psi at inner wall of tank multiplied by 3.0 will not exceed the tensile strength of any specimen taken from the tank and tested as prescribed in § 179.500–7(b). Minimum wall thickness shall be $\frac{1}{4}$ inch.

(b) Calculations to determine the maximum marked test pressure permitted to be marked on the tank shall be made by the formula:

$$P = [10S(D^2 - d^2)] / [7(D^2 + d^2)]$$

Where:

P = Maximum marked test pressure permitted;

$S = U / 3.0$

Where:

U = Tensile strength of that specimen which shows the lower tensile strength of the two specimens taken from the tank and tested as prescribed in § 179.500–7(b).

3 = Factor of safety.

$(D^2 - d^2)/(D^2 + d^2)$ = The smaller value obtained for this factor by the operations specified in § 179.500–4(c).

(c) Measure at one end, in a plane perpendicular to the longitudinal axis of the tank and at least 18 inches from that end before necking-down:

d = Maximum inside diameter (inches) for the location under consideration; to be determined by direct measurement to an accuracy of 0.05 inch.

t = Minimum thickness of wall for the location under consideration; to be determined by direct measurement to an accuracy of 0.001 inch.

Take $D = d + 2t.$

Calculate the value of $(D^2 - d^2)/(D^2 + d^2)$

(1) Make similar measurements and calculation for a corresponding location at the other end of the tank.

(2) Use the smaller result obtained, from the foregoing, in making calculations prescribed in paragraph (b) of this section.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179–31, 47 FR 43067, Sept. 30, 1982; 66 FR 45391, Aug. 28, 2001]

§ 179.500–5 Material.

(a) Tanks shall be made from open-hearth or electric steel of uniform quality. Material shall be free from seams, cracks, laminations, or other defects injurious to finished tank. If not free from such defects, the surface may be machined or ground to eliminate these defects. Forgings and seamless tubing for bodies of tanks shall be stamped with heat numbers.